



ENSAFE INC.

ENVIRONMENTAL AND MANAGEMENT CONSULTANTS

N00639 AR.000487
MILLINGTON SUPPACT
5090 3a

5724 Summer Trees Drive • Memphis, Tennessee 38134 • Telephone 901-372-7962 • Facsimile 901-372-2454 • www.ensafe.com

July 14, 1998

Commanding Officer
Attn: Mr. John Karlyk, Code 1846
SOUTHNAVFACENGCOM
P.O. Box 190010
North Charleston, South Carolina 29419-9010

Subject: Delivery of Report
CTO-136, UST N-12, NSA Memphis

Reference: Contract # N62467-89-D-0318, CLEAN II

Dear Mr. Karlyk:

EnSafe Inc. is pleased to submit one copy of the Final Contamination Assessment Report for Underground Storage Tank site N-12 at the Naval Support Activity in Memphis, Tennessee. To aid in your review, I have included copies of the response to comments.

If you should have any questions or need any additional information regarding the document, please do not hesitate to call me.

Sincerely,

EnSafe Inc.

Allison L. Harris
Task Order Manager

Enclosure: Final Contamination Assessment Report, UST N-12, NSA Memphis

cc: Mr. Randy Wilson, NSA Memphis — 1 copy
Ms. Kimberly Reavis, Code 0233KR SOUTHNAVFACENGCOM without enclosure
EnSafe Inc. CTO 136 file without enclosure
EnSafe Inc. Library with enclosure

NSA MEMPHIS RFI DISTRIBUTION LIST

Document Title: *Final Contamination Assessment Report for Underground Storage Tank N-12*
 Document Date: July 14, 1998
 Distribution Date: July 14, 1998
 Billing Code: 136-001-18-300-00 (shipping of copies to SOUTHDIR should be charged to overhead)

ADDRESS	VIA	DISTRIBUTION	COPIES
Commanding Officer Attn: Mark Taylor/1861MT SOUTHNAVFACENGCOM 2155 Eagle Drive North Charleston, SC 29418 (803) 820-5573	Mail	Mark Taylor/1872MT David Porter/1882DP	<u> 1 </u>
U.S. Env't. Protection Agency Attn: Brian Donaldson Waste Management Division Federal Facilities Branch 100 Alabama Street, SW Atlanta, GA 30303 (404) 562-8554	Std. O/N FedEx	Brian Donaldson	<u> 1 </u>
TDEC--Division of Superfund Memphis Field Office Attn: Jim Morrison Suite E-645, Perimeter Park 2500 Mt. Moriah Memphis, TN 38115-1511 (901) 543-6695	Std. O/N FedEx	Jim Morrison	<u> 1 </u>
U.S. Geological Survey Water Resources Division Attn: Jack Carmichael 810 Broadway, Suite 500 Nashville, TN 37203 (615) 736-5424, Ext.3137	Mail	Jack Carmichael (Nashville) Bill Parks (Memphis)	<u> 1 </u>
Commanding Officer Attn: John Karlyk/1846 SOUTHNAVFACENGCOM 2155 Eagle Drive North Charleston, SC 29418 (803) 820-5573	Mail	John Karlyk/1846	<u> 3 </u>
Randy Wilson Naval Support Activity Memphis	Hand-Deliver	Randy Wilson	<u> 2 </u>

ENSAFE

**Responses to SOUTHNAVFACENGCOM Comments
Draft Contamination Assessment Report (Dated April 3, 1998)
Underground Storage Tank N-12
NSA Memphis**

Comment 1: Page iv, 1st bullet

The beginning two sentences have syntax errors.

Response:

The errors are noted and have been corrected.

Comment 2: Page 2, 1st paragraph next to the last sentence.

...give accurate locations (within 0.1 mile) of water lines... The meaning is not clear. Does this mean that the utility maps in the report are accurate within a radius of 0.1 mile from Building N-12?

Response:

Yes. In accordance with the TDEC, Division of Underground Storage Tanks, Environmental Assessment Report Guidelines, August, 1996, a vicinity map(s) must be included in the EAR and must "show site location including all streets, buildings, subsurface structures, and utilities within one-tenth (0.1) mile from the site." The vicinity maps included in this report are provided by the Navy Public Works Department.

Comment 3: Figure 2-1

Delete "Plan of Action"

Response:

This oversight is noted and will be corrected.

Comment 4: Figure 2-3

Similar. The nomenclature for the wells in the drawing does not agree with the legend.

Response:

This oversight is noted and will be corrected.

Comment 5: Figure 2-3

Similar. Also, the scale appears to be wrong by a factor of 2 or more. Using the scale shown the distance between wells 3 and 4 is about 250 feet and not 102 as noted.

Response:
The figure has been corrected.

Comment 6: Figure 3-1

Please use larger font in the legend section. Figure 4-5, 4-6 similar.

Response:
The comment is noted and the figures will be revised accordingly.

Comment 7: Figure 3-2

Similar. Syntax error in the legend notes.

Response:
The comment is noted and the figure will be revised accordingly.

Comment 8: Page 46

The last bullet item, the sentence does not read right.

Response:
The error is noted and will be corrected.

The following comments apply to your responses to my comments of February 27, 1998:

Comment 1: Response Comment #4

I'm confused by your reply. Are there two standards in Tennessee for soil boring logs and monitoring construction diagrams, one for USTs and another for non USTs? Your reply to my initial comment leads me to believe that there is one standard for USTs and a second for non USTs.

Response:
Because UST N-12 is not a registered tank, and not required to register with the Division of Underground Storage Tanks, there is no requirement that boring logs kept during site drilling activities be provided in the Standard Drilling Log format (TGD-006), as required for registered USTs.

Comment 2: Response to Comment #5

This response is unsatisfactory. I would like to know what purpose does a FOC sample accomplish besides the one that is required by Tennessee rules.

Response:

Foc is the fraction of organic carbon present in soil and is calculated by measuring the ratio of organic carbon as TOC (in mg) per kilogram of soil (converted to mg). In other words, if the TOC is 1,000 mg/kg, then the Foc is 1,000 mg carbon/1,000,000 mg soil = 0.001.

Foc is used to calculate the adsorption coefficient of contaminants, Kd in soil. Kd provides an idea of how a fraction of the contaminant is adsorbed to soil and what fraction of the contaminant is in the aqueous phase; Kd is also an input parameter for modeling subsurface contaminant transport.

Nonpolar organic compounds such as petroleum hydrocarbons are found to be sorbed by the medium on existing solid organic matter present in soil. This sorption is due primarily to hydrophobic interactions resulting in weak, nonspecific sorption forces. The distribution coefficient Kd is found to be a function of the hydrophobic character of the organic compound and the amount of organic matter present; it may be written as:

$$Kd = Koc \times Foc$$

where Koc is the organic carbon partition coefficient (estimated for different compounds).